



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,437	01/15/2002	Lawrence W. Hrubesh	IL-10413	6489

7590

07/20/2004

Alan H. Thompson  
Assistant Laboratory Counsel  
Lawrence Livermore National Laboratory  
P.O. Box 808, L-703  
Livermore, CA 94551

EXAMINER
----------

LISH, PETER J

ART UNIT	PAPER NUMBER
----------	--------------

1754

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/050,437

Applicant(s)

HRUBESH, LAWRENCE W.

Examiner

Peter J Lish

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4,8 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,8 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 4, 8, and 18 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are drawn toward presently amended claim 1, which amendment necessitated the new grounds of rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4, 8, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendments to claim 1, specifically the new limitations "wherein the ratio of hydroxylated benzene compound to catalyst is less than 1000" and "with a density less than 300 g/cc" represent new matter. The fact that the specification shows a single example that has a ratio of about 50 does not provide sufficient support for the amendment. Nowhere previous to the current amendment does the applicant mention a ratio of hydroxylated benzene compound to catalyst, let alone the value of such a ratio being of significance to the applicant's claimed invention. It is also not clear as to where the support for the density limitation is derived.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Droege et al. (US 5,945,084).

Droege teaches a process for the preparation of open cell carbon foam/carbon substrate composites (column 14), which are useful as electrode materials. The process comprises forming a reaction mixture, infiltrating a porous carbon substrate or porous organic substrate with the reaction mixture, heating at a gelation temperature to gel the reaction mixture, heating the composite at a curing temperature to cure the gel, drying the composite, and pyrolyzing the composite to carbonize. The substrate may take the form of papers, foams, fabrics, fibers, etc. The reaction mixture is preferably a solution containing a plurality of carbon aerogel precursors, such as resorcinol and formaldehyde.

While Droege teaches an improvement in the process by the use of a reaction mixture having a ratio of hydroxylated benzene compound to catalyst (R/C) greater than 1000, Droege also teaches that the conventional process utilizes a reaction mixture having a lower R/C of about 50 to 400. The drying of the conventional process may be achieved by any conventional method, such as supercritical evaporation using supercritical carbon dioxide. No difference is seen

Art Unit: 1754

between the conventional process taught by Droege et al. and that of the instantly claimed invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Droege et al. (US 5,945,084).

Droege et al. is applied above. Droege teaches that the process of gelling is typically performed between 20 and 70 °C for a time typically between 0.1 and 24 hours. It would have been obvious to one of ordinary skill at the time of invention to use a slightly higher temperature, such as 80 °C, which would allow for a shorter treatment time, because it would have been obvious to optimize the temperature vs. time factor in order to obtain the desired effect.

Droege teaches that the process of pyrolysis is typically performed between 600 and 3000 °C for a time typically between 1 and 6 hours. It would have been obvious to one of ordinary skill at the time of invention to use a longer treatment time, such as 8 hours, in order to ensure that pyrolysis and carbonization is fully achieved. Additionally, it would have been obvious to optimize the temperature vs. time factor in order to obtain the desired effect.

Art Unit: 1754

Claims 1, 4, 8, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pekala et al. (US 5,932,185) in view of Kaschmitter et al (US 5,260,855).

Pekala '185 teaches a method of making electrodes by infiltrating a highly porous carbon papers, membranes, felts, metal fibers/powders, or fabrics with an appropriate carbon foam precursor material. The infiltrated carbon paper, for example, is then cured to form a gel-saturated carbon paper, which is subsequently dried and pyrolyzed to form a thin sheet of porous carbon. The foam precursor is a solution containing a plurality of carbon aerogel precursors, such as resorcinol or phenol and formaldehyde. The drying may be accomplished by supercritical carbon dioxide.

Pekala teaches that the process of curing, which incorporates allowing the solution to gel at about 50 °C for 1-4 hours, followed by treatment at 85-95 °C for 1-3 days. It would have been obvious to one of ordinary skill at the time of invention to use a slightly higher temperature for the gelling treatment, such as 80 °C, which would allow for a shorter treatment time, because it would have been obvious to optimize the temperature vs. time factor in order to obtain the desired effect.

The pyrolysis is performed at a selected temperature of about 1050 °C for a period of time of about 4 hours. The use of different pyrolysis temperatures within the range of 500-3000 °C for varying times, such as 1-8 hours, is taught to achieve desired properties. It would have been obvious to one of ordinary skill at the time of invention to use a longer treatment time, such as 8 hours, in order to ensure that pyrolysis and carbonization is fully achieved. Additionally, it would have been obvious to optimize the temperature vs. time factor in order to obtain the desired effect.

Pekala et al. does not explicitly teach the hydroxylated benzene compound to catalyst ratio of the precursor solutions. Kaschmitter et al. teaches that the desired foam precursor solution for the preparation of electrodes has a ratio of hydroxylated benzene compound to catalyst (R/C) of about 50. It would have been obvious to one of ordinary skill at the time of invention to use the solution of Kaschmitter et al. in the process of Pekala et al. in order to obtain the highest capacitance from the produced electrodes.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

PL



**STUART L. HENDRICKSON**  
**PRIMARY EXAMINER**